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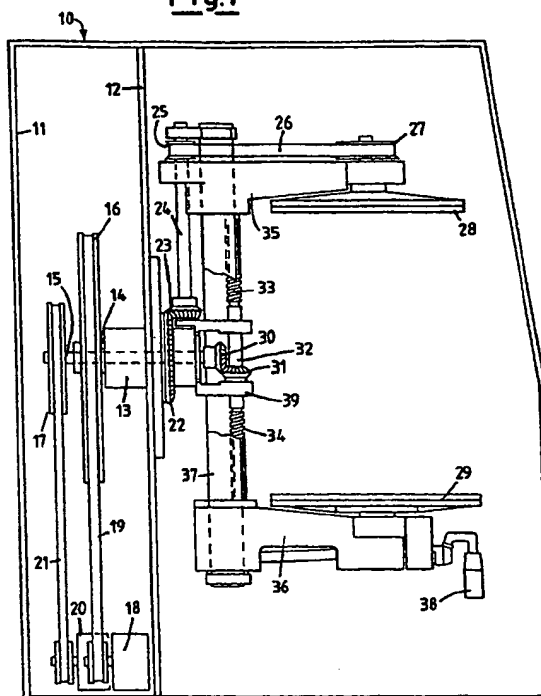
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(54) **Mixing machine for mixing or amalgamating varnishes, paints and the like**

(57) Mixing machine (10) for mixing or amalgamating varnishes, paints and the like comprising two coaxial shafts (14,15) each one being operated by an electric motor (18,20), a support (36) for a lower cap (29) that can be manually moved forward to load a can of varnish and cooperating with a top support (35) carrying a top cap (28) to secure the can. The shaft (15) transmits the motion to the top cap to turn the container about its axis; the shaft (14) transmits its motion to a spindle (32) provided with worms (33,34) in the ends to approach or move away the caps. A fork (39) operated by the shaft (15) turns the caps about an axis which is perpendicular to the axis of the can of varnish.

Fig.1



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Description

[0001] The present invention relates to a mixing machine for mixing or amalgamating varnishes, paints and the like.

[0002] In the past manufacturers had been producing a lot of cans of varnishes or paints in several tonalities of colour and therefore a big store was required to provide room for said cans and also the dealer should have enough room to keep that variety of cans with all the different tonalities.

[0003] In order to obviate all this, the dealer keeps some basic colours in the shop and prepares the desired tonality there and then, using suitable batching machines. In order to get this result, it is not enough to fill a can with definite percentages of basic colours, but said colours must be amalgamated by means of suitable machines which will mix the filled can.

[0004] In variety stores, where a lot of paints of the same tonality are packed and sold, some mechanical mixers are used, said mixers being inserted into the filled cans and thus amalgamating the different basic paints by the rotatory motion of the blade.

[0005] This method is useful just for the variety stores and for the preparation of a lot of varnishes or paints of the same tonality; in fact, at every change of colour or tonality the mixer must be replaced by a clean one and it takes a long time to replace and clean the mixer, so that the production cost notably increases if the amount of varnish or paint is very small.

[0006] In small stores or shops smaller mixers are used, in which a motor operates, by means of a belt, a pulley which transmits the motion to various pairs of gears in order to turn, like a gyroscope, the can of varnish secured between two caps that can slide along four vertical pilot bars. The mass that is turned is very big and therefore a quite powerful motor is required to turn everything and prevail over the various frictions. The complicated construction of the different parts and the motor high power increase the production costs.

[0007] The present invention intends to overcome the above mentioned inconveniences.

[0008] The technical problem to be solved consists in performing a simple mixing machine, with few parts and therefore not very expensive and reliable with little rotating masses.

[0009] The technical solution provides two coaxial shafts operated by an electric motor, a lower cap support that can be manually moved forward to load a can of varnish and cooperating with a top cap support to hold said can, the former being provided to transmit the motion from one of said shafts to said top cap and turn said can on itself, the latter being provided to transmit the motion from the other shaft to said caps and draw them nearer and firmly hold said can and turn it around an axis which is perpendicular to its own axis.

[0010] Further features and advantages will be more apparent from the description and the accompanying

drawings in which:

Figure 1 is a side view of the machine of the present invention and

Figure 2 shows a detail of the machine of Figure 1.

[0011] With reference to Figure 1, 10 generically indicates a mixing machine for mixing or amalgamating varnishes or paints including a frame 11 provided with a vertical inside surface 12 to which a bush 13 is fixed and which is provided with two coaxial shafts 14 and 15 with pulleys 16 and 17 fixed to them. The pulley 16 is operated by an electric motor 18 which transmits the motion by means of a belt 19; the pulley 17 is operated by a second electric motor 20 by means of a belt 21.

[0012] The shaft 14, which is operated by the pulley 16, supports a bevel gear 22 connected to a second gear 23 which operates a pulley 25 by means of a spindle 24; the pulley 25 is connected to a pulley 27 by means of a belt 26; the pulley 27 is connected to a top cap 28 which turns when a can filled with varnish to be mixed is loaded, as will be more apparent from the ensuing description.

[0013] The top cap 28 cooperates with a lower cap 29 on which the can of varnish is placed.

[0014] The shaft 15, operated by the pulley 17, carries a gear 30 in the other end; the gear 30 is connected to a gear 31 to have a shaft 32 turned, on which worms 33 and 34 are placed in the ends, said worms cooperating with supports 35 and 36 which carry the cap 28 and the cap 29, respectively.

[0015] Two guides 37 direct the vertical motion of the supports 35 and 36 to prevent them from turning.

[0016] The cap 29 is manually moved forward by turning a cotter 38 (Figs. 1 and 2) to load the can of varnish.

[0017] After the container is placed on the cap 29, said cap is pushed in the direction of the arrow A (Fig. 2) until the cotter 38 secures the cap 29. Then the motor 20 is operated and the caps 28 and 29 approach by means of the kinematic chain belt 21, the pulley 17, the shaft 15, the gear 30, the gear 31, the shaft 32, the worms 33 and 34, until the can of varnish is secured between said caps.

[0018] After the can of varnish is secured between the caps 28 and 29, the motor 18 is operated and it causes the cap 28 to turn about its axis by means of the shaft 14, the spindle 24 and the belt 26 and so the can of varnish turns on itself.

[0019] The shaft 14 operates a fork 39 which transmits the rotary motion to the supports 35 and 36 and then the caps 28 and 29 turn around the axis of the shaft 14.

[0020] The can of varnish is made to turn around itself by means of the motor drive 20 and also around an axis by means of the motor drive 18, said axis being perpendicular to its own axis.

[0021] The combining rotations get the varnish uniformly mixed or amalgamated in the can.

[0022] The machine achieving this is compact, easily

made with few parts to secure the can and with two perpendicular motions to get a perfect mixing.

Claims

1. Mixing machine for mixing or amalgamating varnishes, paints and the like, characterised in that two coaxial shaftes are provided, each one being operated by an electric motor, a support for a lower cap that can be manually moved forward to load a can of varnish and cooperating with a top support carrying a top cap to secure said can, the former being provided to transmit the motion from one of said shafts to said top cap in order to turn said can on itself and the latter being provided to transmit the motion from the other shaft to said caps which approach and secure said can and turn it around an axis which is perpendicular to its own axis.
2. Mixing machine according to claim 1, characterised in that the former means comprise a first bevel gear fixed to said first shaft and connected to a second bevel gear fixed to an end of a shaft supporting a pulley connected to another pulley by means of a belt, said pulley being connected to said top cap and said cap being turned by said coaxial shaft when said can is secured between said top cap and said lower cap.
3. Mixing machine according to claim 1, characterised in that the latter means include a gear fixed to said second coaxial shaft and cooperating with a gear fixed to a shaft on which two worms are placed in the ends which cooperate with said cap supports which approach to secure said can of varnish and move away to free said can when the varnish is amalgamated, a fork being provided on said shaft to transmit the rotary motion to said cap supports.
4. Mixing machine according to claim 3, characterised in that some guides are provided to move said supports backward and forward, said guides being provided to prevent said supports from turning.
5. Mixing machine according to claim 1, characterised in that said lower cap is provided with a cotter to move said cap forward and load said can of varnish, said cotter when turned allowing said lower cap to move and when locked securing said cap in the operating position.

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Fig.1

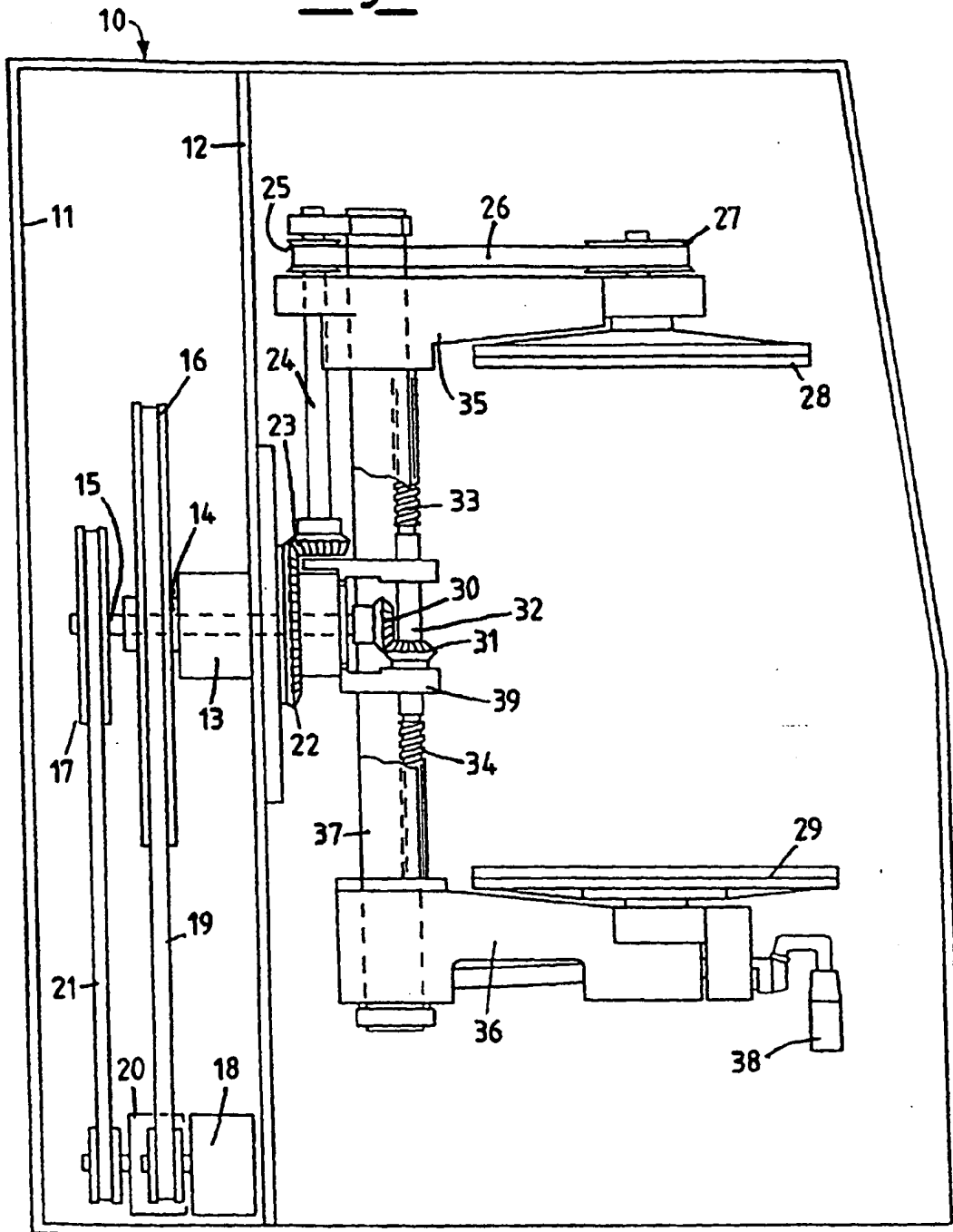
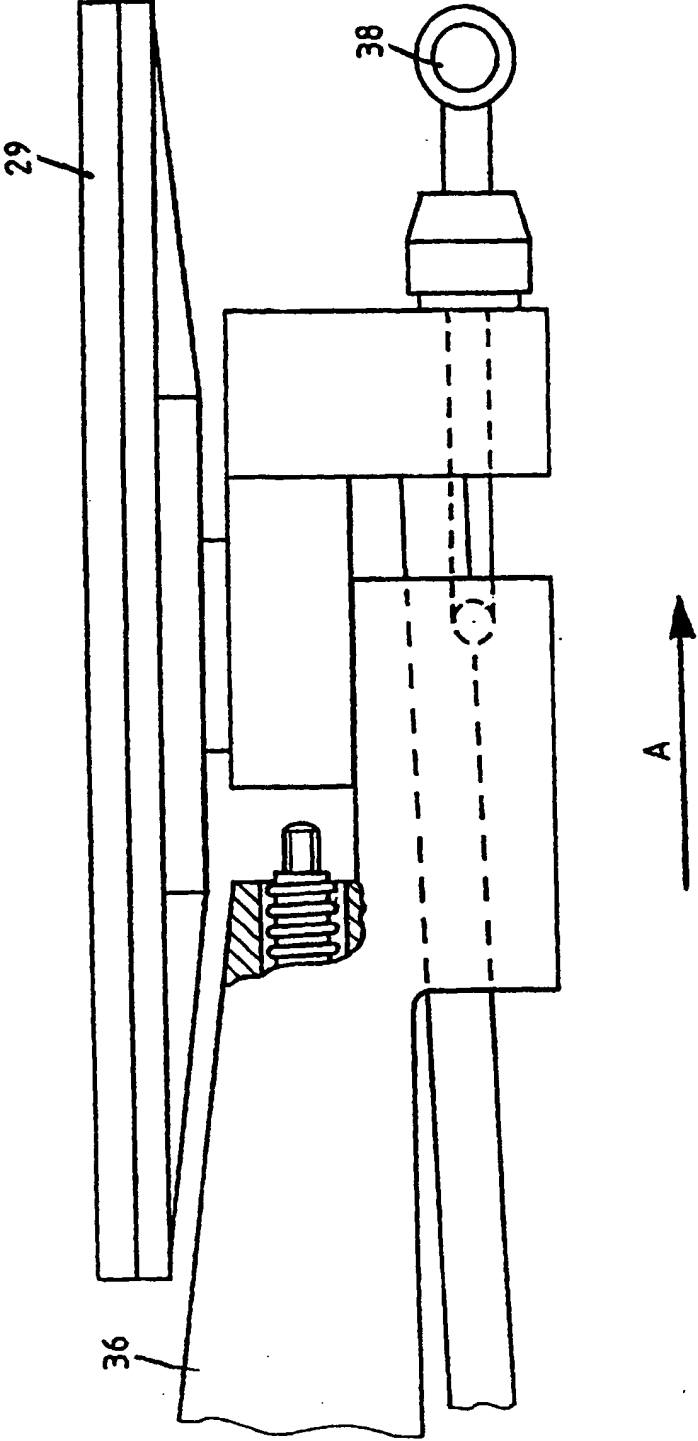


Fig.2





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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 1443

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP 0 796 652 A (COLLOMIX RUEHR MISCHGERAETE) 24 September 1997 * abstract; claim 1; figures * * column 1, line 1 - column 2, line 13 *	1-5	B01F9/00
A	US 5 197 802 A (MILLER WILLIAM A ET AL) 30 March 1993 * abstract; claim 1; figures *	1-5	
A	DE 31 11 437 A (MURJAHN AMPHIBOLIN WERKE) 14 October 1982 * abstract; claim 1; figures * * page 13, line 17 - page 15, line 9 *	1,5	
A	DE 28 09 513 A (KROEMMELBEIN KLAUS H DIPL KFM) 13 September 1979 * claim 1; figure 1 *	1	
A	WO 91 08045 A (GEORGE FETHERS & CO TRADING PT) 13 June 1991 * abstract; claims 1-6; figures 1,3-5 *	1-5	
A	US 3 880 408 A (KARJALAINEN PENTTI) 29 April 1975 * abstract; figures *		B01F
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Place of search THE HAGUE		Date of completion of the search 2 October 1998	Examiner Dugdale, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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